In the Claims:

1. (Cancelled)

2. (Currently Amended) ~~The method of claim 1, whereby the step of scaling the data by application of a combined matrix further comprises~~ A method for efficient scaling in the transform domain when transform coefficient data is provided as an input to a data processing system, comprising the steps of:

providing transform coefficient data to the data processing system;

generating ~~the~~ a combined matrix for one-dimensional scaling; and

the data processing system scaling data represented by the transform coefficient data in the transform domain by applying the combined matrix to said transform coefficient data;

wherein generating the combined matrix comprises the steps of:

~~(a)~~ selecting a rational scaling factor F;

~~(b)~~ selecting a matrix dimension value m; and

~~(c)~~ selecting ~~g as the~~ a smallest integer g wherein $(Fg)/m$ is an integer k;

~~(d)~~ generating a first matrix operating on at least one (mg)x(m) matrix by:

~~(d1)~~ zeroing out at least one row or at least one column of said matrix; or

~~(d2)~~ inserting at least one row of zeros or at least one column of zeros into said matrix;

~~(e)~~ generating a second matrix by applying a one-dimensional inverse transform to the first matrix; and

~~(f)~~ generating a third matrix by regrouping said second matrix so that it is conceived of as being composed of k (m)x(m) matrices; and

~~(g)~~ generating the combined matrix by applying a one-dimensional forward transform to said third matrix.

3. (Currently Amended) The method of claim 2, further comprising the steps

~~(h)~~ selecting at least one common denominator q; and

~~(i)~~ representing at least two terms in the combined matrix by integers whose ratios with the common denominator q are scaled approximations of the terms.

4. (Currently Amended) The method of claim 2, wherein the step ~~(g)~~ of applying a one-dimensional forward transform to the third matrix comprises applying ~~is~~ a discrete cosine transform, and the step ~~(e)~~ of generating the second matrix by applying a one-dimensional inverse transform to the first matrix comprises applying ~~is~~ a discrete cosine transform.

5. (Cancelled)

6. (Currently Amended) ~~The method of claim 5~~ A method for efficient scaling in the transform domain when transform coefficient data is provided as an input to a data processing system, comprising the steps of:

providing transform coefficient data to the data processing system;

generating a combined matrix for two-dimensional scaling; and

the data processing system scaling data represented by the transform coefficient data in the transform domain by application of the combined matrix to said transform coefficient data simultaneously in two-dimensions;

wherein generating the combined matrix for two-dimensional scaling comprises the steps of:

~~(a)~~ selecting horizontal scaling parameters *Fh*, *mh* and *gh*;

~~(b)~~ selecting vertical scaling factors *Fv*, *mv*, and *gv*;

~~(c)~~ generating a first combined matrix for horizontal scaling using parameters *Fh*, *mh*, and *gh*;

~~(d)~~ generating a second combined matrix which operates on said first combined matrix using parameters *Fv*, *mv*, and *gv*; and

~~(e)~~ combining the first and second matrices into a single combined matrix.

7. (Currently Amended) The method of claim 6, further comprising the steps of:

~~(f)~~ selecting at least one common denominator *q*; and

~~(g)~~ representing at least two terms in the combined matrix by integers whose ratios with the common denominator q are scaled approximations of the at least two terms.

8. (Currently Amended) The method of claim 3, wherein the step ~~(h)~~ of selecting the common denominator q comprises choosing q according to a predetermined cost function.

9. (Original) The method of claim 8, wherein the predetermined cost function comprises the step of selecting the common denominator q so that the largest error on any transform coefficient is no larger than a predetermined error percentage.

10. (Currently Amended) ~~The method of claim, 1~~ A method for efficient scaling in the transform domain when transform coefficient data is provided as an input to a data processing system, comprising the steps of:

providing transform coefficient data to the data processing system; and

the data processing system scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data ~~wherein the combined matrix operates according to the following~~ by the steps of:

~~(b1)~~ determining first and second precisions to be allocated in a single register to hold respective first and second signed data elements;

~~(b2)~~ packing the first and second elements into the register;

~~(b3)~~ operating on the first and second elements;

~~(b4)~~ determining third and fourth precisions to be allocated in the single register to hold respective third and fourth signed data elements, at least one of the first and third precision being different from each other, and the second and fourth precisions being different from each other;

~~(b5)~~ packing the third and fourth elements into the register; ~~and~~

~~(b6)~~ operating on the third and fourth elements; and

~~wherein~~ the register ~~sends~~ sending plural data elements simultaneously to at least one computational subsystem.

11. (Currently Amended) The method of claim 10, wherein the operating steps ~~(b3)~~ ~~and (b6) are a multiplication~~ of operating on the first and second elements and operating on the third and fourth elements comprise multiplying by a constant or by a variable of known precision, or an addition, or a shift-left logical, or a subtraction, or a bitwise AND, or a bitwise OR.

12. (Currently Amended) The method of claim 2 wherein the scaling is a down-scaling operation;

the step ~~(a)~~ ~~comprises~~ of selecting ~~a~~ the rational scaling factor F comprises selecting F between 0 and 1; and

the step ~~(d)~~ of generating the first matrix is the step ~~(d1)~~ of zeroing out at least one row or at least one column of said matrix.

13. (Currently Amended) The method of claim 2 wherein the scaling is an up-scaling operation;

the step ~~(a) comprises~~ selecting ~~a~~ the rational scaling factor F comprises selecting F larger than 1; and

the step ~~(d)~~ of generating the first matrix is the step ~~(d2)~~ of inserting the at least one row of zeros or the at least one column of zeros into said matrix.

14. (Original) The method of claim 2 wherein the matrix dimension value *m* is 8.

15. (Cancelled)

16. (Currently Amended) ~~The data processing system of claim 15~~ A data processing system for efficient scaling in the transform domain when transform coefficient data is provided as an input, comprising:

transform coefficient data; and

a processor means configured to process scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix ~~wherein the combined matrix is~~ configured for one-dimensional scaling to said transform coefficient data,

~~further comprising~~, the combined matrix defined by:

~~(a)~~ a rational scaling factor F;

~~(b)~~ a matrix dimension value m; and

~~(c)~~ g, ~~the~~ a smallest integer g wherein $(Fg)/m$ is an integer k;

~~(d)~~ a first matrix formed from at least one (mg)x(m) matrix by:

~~(d1)~~ zeroing out at least one row or at least one column of said matrix; or

~~(d2)~~ inserting at least one row of zeros or at least one column of zeros into said matrix;

~~(e)~~ a second matrix formed by applying a one-dimensional inverse transform to the first matrix; and

~~(f)~~ a third matrix formed by regrouping said second matrix so that it is conceived of as being composed of k (m)x(m) matrices; and

~~(g)~~ wherein the combined matrix is generated by applying a one-dimensional forward transform to said third matrix.

17. (Currently Amended) The data processing system of claim 16, ~~further comprising~~ wherein the combined matrix is further defined by:

~~(h)~~ at least one common denominator q; and

~~(i)~~ wherein at least two terms in the combined matrix are represented by integers whose ratios with the common denominator q are scaled approximations of the at least two terms.

18. (Original) The data processing system of claim 16 wherein the second matrix forward transform is a discrete cosine transform, and the combined matrix inverse transform is a discrete cosine transform.

19. (Cancelled)

20. (Currently Amended) ~~The data processing system of claim 19~~ A data processing system for efficient scaling in the transform domain when transform coefficient data is provided as an input, comprising:

transform coefficient data; and

a processor means configured to process scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data simultaneously in two-dimensions, wherein the combined matrix for two-dimensional scaling ~~further comprises~~is defined by:

~~(a)~~ horizontal scaling parameters *Fh, mh* and *gh*;

~~(b)~~ vertical scaling factors *Fv*, *mv*, and *gv*;

~~(c)~~ a first combined matrix for horizontal scaling generated from parameters *Fh*, *mh*, and *gh*;

~~(d)~~ a second combined matrix generated from operating on said first combined matrix using parameters *Fv*, *mv*, and *gv*; and

~~(e)~~ a single combined matrix generated by combining the first and second matrices.

21. (Currently Amended) The data processing system of claim 20, wherein the combined matrix for two-dimensional scaling is further defined by~~comprising~~:

~~(f)~~ at least one common denominator *q*; and

~~(g)~~ wherein at least two terms in the combined matrix are represented by integers whose ratios with the common denominator *q* are scaled approximations of the at least two terms.

22. (Cancelled)

23. (Currently Amended) ~~The data processing system of claim 22~~ A data processing system for efficient scaling in the transform domain when transform coefficient data is provided as an input, comprising:

transform coefficient data; and

a processor means configured to process scaling data represented by the transform coefficient data in the transform domain by application of a combined matrix to said transform coefficient data;

wherein the processor means is configured to define the combined matrix by selecting a scaling term g according to a predetermined cost function~~, wherein the predetermined cost function means comprises means for selecting the scaling term g~~ so that the largest error on any transform coefficient is no larger than a predetermined error percentage.

24. (Currently Amended) The data processing system of claim 23, further comprising:

a single register; and

a computational subsystem;

wherein the combined matrix is defined by first, second, third and fourth transforms ~~means are~~, and the processor means is configured to:

~~(b1)~~ determine first and second precisions to be allocated in the single register to hold respective first and second signed data elements;

~~(b2)~~ pack first and second signed data the elements into the register;

~~(b3)~~ operate on the first and second signed data elements;

~~(b4)~~ determine third and fourth precisions to be allocated in the single register to hold respective third and fourth signed data elements, at least one of the first and third precision being different from each other, and the second and fourth precisions being different from each other;

~~(b5)~~ pack the third and fourth elements into the register; and

~~(b6)~~ operate on the third and fourth elements; and

wherein the register is configured to send[s] plural data elements simultaneously to the at least one computational subsystem.

25. (Currently Amended) The data processing system of claim 24, wherein the processor means is further configured to apply the first, second, third and fourth transforms ~~means are further configured to operate~~ by operating on the first, second, third and fourth elements by multiplication by a constant or by a variable of known precision, or by an addition, or by a shift-left logical, or by a subtraction, or by a bitwise AND, or by a bitwise OR.

26. (Currently Amended) The data processing system of claim 16 wherein the processor means is configured to process scaling data ~~is a~~ by down-scaling ~~operation~~;

the rational scaling factor *F* has a value between 0 and 1; and

wherein the first matrix step is formed by zeroing out at least one row or at least one column of said (mg)x(m) matrix.

27. (Currently Amended) The data processing system of claim 16 wherein the processor means is configured to process scaling data ~~is an~~ by up-scaling ~~operation~~;

the rational scaling factor *F* has a value larger than 1; and

wherein the first matrix step is formed by inserting at least one row of zeros or at least one column of zeros into said (mg)x(m) matrix.

28. (Original) The data processing system of claim 16 wherein the matrix dimension value *m* is 8.

29. (Cancelled)

30. (Currently Amended) ~~The article of manufacture of claim 29, wherein the computer readable program, when executed on a computer, causes the computer to generate~~ An article of manufacture comprising a computer-readable medium having a computer-readable program embodied in said medium, wherein the computer-readable program, when executed on a computer, causes the computer to scale data represented by transform coefficient data in the transform domain by application of a combined matrix for one-dimensional scaling to said transform coefficient data, by:

~~(a)~~ selecting a rational scaling factor *F*;

~~(b)~~ selecting a matrix dimension value *m*; ~~and~~

~~(c)~~ selecting ~~g as the~~ a smallest integer *g* wherein $(Fg)/m$ is an integer *k*;

~~(d)~~ generating a first matrix operating on at least one (mg)x(m) matrix by:

~~(d1)~~ zeroing out at least one row or at least one column of said matrix; or

~~(d2)~~ inserting at least one row of zeros or at least one column of zeros into said matrix;

~~(e)~~ generating a second matrix by applying a one-dimensional inverse transform to the first matrix; ~~and~~

~~(f)~~ generating a third matrix by regrouping said second matrix so that it is conceived of as being composed of k (m)x(m) matrices; and

~~(g)~~ generating the combined matrix by applying a one-dimensional forward transform to said third matrix.

31. (Currently Amended) ~~The article of manufacture of claim 29, wherein the computer readable program, when executed on a computer, causes the computer to generate~~ An article of manufacture comprising a computer-readable medium having a computer-readable program embodied in said medium, wherein the computer-readable program, when executed on a computer, causes the computer to scale data represented by transform coefficient data in the transform domain by application of a combined matrix for two-dimensional scaling to said transform coefficient data, by:

~~(a)~~ selecting horizontal scaling parameters *Fh*, *mh* and *gh*;

~~(b)~~ selecting vertical scaling factors *Fv*, *mv*, and *gv*;

~~(c)~~ generating a first combined matrix for horizontal scaling using parameters *Fh*, *mh*, and *gh*;

~~(d)~~ generating a second combined matrix which operates on said first combined matrix using parameters *Fv*, *mv*, and *gv*; and

~~(e)~~ combining the first and second matrices into a single combined matrix.